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Mountain Turtles and Giant Crabs: Cosmological Implications and Supernatural Understandings of Rare Creatures on an Eastern Indonesian Island

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ABSTRACT

On the eastern Indonesian island of Flores, the Lio and neighboring ethno-linguistic groups report rare encounters with freshwater turtles and giant land crabs. Though neither species has yet to be scientifically documented for Flores, local descriptions of these animals closely correspond to *Cuora amboinensis*, a species of box turtle found elsewhere in eastern Indonesia, and the Coconut crab, *Birgus latro*, the world's largest terrestrial arthropod. At the same time, Lio and other Florenese attribute supernatural powers to the creatures and identify both as embodiments of forest spirits. This paper shows how this dual ontological status is explicable by reference to features of Florenese cosmology and folk ecology, particularly the value islanders place on the opposition of "land" and "sea." According to academic zoology, the turtles and crabs are both terrestrial creatures. But because of their extreme rarity, and because Florenese are normally familiar only with marine turtles and marine and small land or freshwater crabs, they identify all turtles and crabs as, essentially, creatures of the sea. So on those rare occasions when someone sees a freshwater turtle or Coconut crab, typically far inland and often in mountain forests, their phenomenal occurrence is experienced as a radical and frightening contravention of the fundamental cosmological opposition of sea and land. Also facilitated by the species' rarity – locally understood as a quality of being normally invisible or hidden – encounters with both creatures, considered anomalous within the framework of folk zoogeography, are further experienced as dangerous manifestations of supernatural powers identical to those possessed by normally invisible forest spirits. Even so, there is one context in which the rare turtles and crabs are beneficial to humans – just as are the forest spirits themselves, a nice illustration of how otherwise negative supernatural power can contextually be turned to human use. The case thus raises questions concerning the ubiquitous anthropological trichotomy of "animal," "human," and "spirit" while demonstrating how people can conceive of creatures of particular sorts as participating in both categories simultaneously – indeed, in ways comparable to aspects of Christian theology.

KEYWORDS

Cryptic species; Flores island (Indonesia); folk zoogeography; human–animal interaction; land–sea contrast; spiritual animals

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The purpose of this paper is to demonstrate why certain animals found on the eastern Indonesian island of Flores are considered supernaturally powerful manifestations of spirits, and more especially why the attribution applies to two rare species regarded as the spirits' most dangerous manifestations.

Anthropologists regularly employ "animal" and "spirit" as contraries, an observation that applies to ontological pluralists (e.g., Descola, 2013) as much as to anthropologists of other theoretical persuasions. The third term in this "trichotomy" (Lloyd, 2011) is invariably "human." Probably all human communities conceive of spirits – immaterial beings that possess no permanent or substantial forms of their own and are thus invisible or not consistently visible or perceptible. Yet anthropologists should be equally aware of how, very often, certain animals are closely associated, even identified with spirits – for example, as their embodiments, possessions, agents, or instruments. Sometimes the identification is so close that the animals themselves appear to be treated as spiritual beings, which is to say, as possessing invisible, intangible powers above and beyond their manifest physical, or natural, abilities.

The geographical setting is the Lio ethno-linguistic region of east central Flores, though for comparative purposes I refer as well to Sikka and the Lamaholot-speaking region further to the east. In this part of the island, people recognize several animals as possessing special spiritual powers. Among these are dugongs (*Dugong dugon*), sea mammals whose spiritual character I discussed in an earlier paper (Forth, 2021). Despite their supernatural aspect, however, dugongs are not identified with any particular class of spiritual beings; the creatures are also considered invariably benign. By contrast, the two animals I am concerned with here are regarded as manifestations of a major category of morally ambiguous and potentially malevolent forest spirits called *nitu* (Lio and Sikka; cf. Lamaholot *nitun*), beings that in some contexts are more appropriately called "earth spirits."

One animal is a freshwater turtle, most likely the Southeast Asian box turtle *Cuora amboinensis* (see Figure 1), which following a Lio usage I hereafter call "mountain turtles" (*kéra kéli*). The other is by all indications the Coconut crab, *Birgus latro* (see

Figure 1. The Southeast Asian box turtle, *Cuora amboinensis* (courtesy of Ruchira Somaweera).

Figure 2. The Coconut crab, *Birgus* latro. Aldabra Island, Seychelles, 2017 (courtesy of R. G. Hartnoll).

Figure 2). Lio people report both species as occurring in their territory while the turtles, at least, are also known in more easterly parts of Flores.

Unlike two other entities I touch on below, the turtles and crabs are not "mystery animals" in the sense of creatures that correspond to no identifiable empirical species and which therefore appear largely or entirely imaginary. To be clear, both the turtles and the crabs have yet to be scientifically documented for Flores, and Flores islanders speak of both as extremely rare. Yet as demonstrated elsewhere (Forth, 2017, 2018, 2019) both species are found on neighboring islands and the probable occurrence of freshwater turtles on Flores is consistent with the evidence of hydrological surveys (Schoppe & Das, 2011). What's more, the few people who have observed either the turtles or the crabs describe their morphology and behavior in a completely naturalistic way that closely corresponds with academic zoological knowledge of the species likely concerned, even though Flores islanders additionally credit them with dangerous supernatural powers. For these reasons, the actual occurrence of the turtles and crabs in eastern Flores provides a far more parsimonious explanation for local claims of their existence than could any interpretation of either as an entirely imaginary animal. As one leading carcinologist has noted, the Coconut crab, the species to which Florenese descriptions of giant crabs quite precisely correspond, is so distinctive "as to significantly limit the possibility of confusion with other [crab] species" (R. Hartnoll, pers. comm., cited in Forth, 2019, p. 938). Hereafter, therefore, I simply refer to the crabs as Coconut crabs

To be sure, the locally recognized rarity of mountain turtles and Coconut crabs – one might equally say their "hidden" or "cryptic" character – is a major factor linking them with forest spirits and supernatural danger. Of course, "cryptic" can refer to creatures that are "cryptozoological," or not recognized by academic zoology. As documented species, neither the crabs nor the turtles are completely cryptic in this sense. Yet as I've shown elsewhere (Forth, 2021), scientifically recognized species that are rarely or irregularly

encountered by local people can be treated in the same way as animals considered purely imaginary or "mythical" by Western or academic skeptics.

To be sure, relatively few Florenese are familiar with either the turtles or the crabs, and fewer still have ever encountered a specimen. People say the turtles are now even rarer than during the last century, a change they ascribe to anthropogenic factors, including people failing to observe taboos on harming and killing them. The rarity of the Coconut crabs likely has an additional cause. Because the females of this highly terrestrial species must nevertheless deposit their larvae in the sea (a fact evidently unknown to Florenese), and consequently immature specimens may not reach dry land on the island where they were conceived, the crabs may not comprise a permanent or continuous breeding population (Forth, 2019, p. 924), so that their presence on Flores may be intermittent. Anyway, Coconut crab populations are declining everywhere they have been recorded and the International Union for the Conservation of Nature (IUCN) therefore lists the species (*Birgus latro*) as "endangered." However, rarity is not in itself sufficient to explain the supernatural aspect of the crabs and turtles. As I show, equally if not more important is the place islanders assign to both animals in their indigenous cosmology, folk ecology, and folk zoogeography.

Methods

Evidence for the presence of both freshwater turtles and Coconut crabs on Flores Island is discussed in three previous papers (Forth, 2017, 2018, 2019). Together with information on spiritual representations of the two animals, local knowledge of the creatures' morphology, behavior, occurrence, and habitat is drawn from ethnographic and ethnozoological fieldwork conducted between 2016 and 2018. I began research in the Lio ethnolinguistic region of east central Flores, largely in the easternmost Lio district of Mego centered in the village of Léke Ba'i (8.71°S 112.08°E). I also collected information in Lio villages to the west of Mego, and the study was later extended to the Sikka-speaking region and Lamaholot-speakers in the far eastern administrative region of Flores Timur ("East Flores").[1]

Information of all kinds was generated through open-ended questioning, supplemented by more directive questioning of people who claimed personal experience of the creatures. Most people I questioned had never heard of the turtles, whose possible existence on Flores I first learned about quite by accident (Forth, 2017, p. 307). Still, I was able to identify five Lio people (4 men, 1 woman) who had seen them – all in mountainous locations at least 4 km from the coast – and who gave credible accounts of the animals' appearance and circumstances of their observations. Sighting dates ranged from approximately 1951–52 to 1996. Although my investigations in Sikkanese and Lamaholot-speaking regions were briefer, there I met 10 men and 1 woman who gave credible accounts of sightings of mountain turtles. These included residents of the inland settlement of Boru (8.5196°S 112.8642°E) and other Lamaholot-speakers living near the port town of Larantuka (8.3288°S 112.95°E) at Flores' eastern extremity.

Investigations into Coconut crabs were conducted almost entirely in the Lio region and, again, mostly in the Mego district. In Mego and more westerly Lio districts experience of the crabs appeared rather greater than experience of the turtles. Here, too, most people

I spoke to had only heard about the crabs and had never seen one. Nevertheless, 14 Lio (all but one of whom were men) reported observing specimens and were able to give detailed accounts of their morphology and behavior, all of which matched the species *Birgus latro*. The earliest sighting dated to the 1970s. Seven occurred after 2000 while the most recent was in August 2017. Two eyewitnesses observed two specimens in different years and in different places. Encounters took place in elevated locations between 2–3 and 9–10 km from the sea. Further information on sightings of the turtles and the crabs are given in three previous articles (Forth, 2017, 2018, 2019) [2]

In exploring the present topic, it has proved expedient to describe powers attributed to both mountain turtles and Coconut crabs as "supernatural." By this, I refer to the creatures' reputed ability to mystically or invisibly cause harm (or occasionally, provide benefit) and to change form or otherwise defy the regularities of folk physics. Some anthropologists have objected to the use of "supernatural," claiming it entails a distinction exclusive to Western "naturalist" ontology and that applying it to non-Western understandings of the world risks distortion (Descola, 2013, p. 82; Valeri, 2000, pp. 23–24, 168, 180). This view may resonate with what has been written about some non-Western societies, but by no means all. Lio, for example, describe fully supernatural beings like forest spirits and a supreme being (*Du'a Ngga'e*) with standard expressions meaning "only spirit" or "pure spirit" (*mae mésa*) and "lacking bodies" (*tebo iwa*; cf Arndt, 1933). Unlike forest spirits and other purely spiritual beings, Flores islanders speak of the turtles and the crabs as possessing empirical bodies. So to the extent they also attribute fantastic, non-empirical powers to the creatures, the crabs and turtles appear equally natural and supernatural – or animal and spiritual.

Flores Island Cosmology and Indigenous Zoogeography

Fundamental to local cosmology is the opposition of land and sea, or more specifically "mountain" and "sea." Flores is a long, thin island whose narrowest north to south stretch, a distance of about 13 kilometers, lies in Sikkanese territory just east of Lio. In certain highland locations, both the north and south coasts are visible simultaneously. So in this region especially, the contrast of land and sea may take on a particular salience. Yet the same spatial opposition is equally valued throughout island Southeast Asia and in the southwest Pacific (e.g., Sahlins, 1990; Toren, 1990) – an area linguistically demarcated by the predominance of Malayo-Polynesian languages.

On Flores, as throughout the region, the land-sea contrast is crucial to various areas of social and conceptual life – including the proper orientation of houses and villages and the relative placement of component social groups inside settlements.[3] Especially germane to the present discussion is the part played by the contrast in defining the principal axis of local systems of direction, spatial coordination, and geographical knowledge (e.g., Blust, 1997). The Lio provide as good an example as any of such a system. Lio *ghéta* (landward) and *lau* (seaward) are complemented by a secondary axis defined by *mena* and *ghale*, terms that in essence refer to directions to the right or left while facing either landward or seaward. (Facing landward on the south coast, *mena*, "rightwards," is to the east, while on the north coast *mena* is to the west.) Anthropologists will be more familiar with the fundamentally identical system found on Bali, where the principal

axis is *kaja* (landward, towards the mountainous center of the island) and *kelod* (towards the sea), though Balinese employ a nine-part system comprising another two axes intermediate between the primary pair (Lansing, 1995). Each of the nine spatial terms is then associated with particular deities, colors, letters of the Balinese alphabet, and parts of the human body. Nothing quite so elaborate is found on Flores. Yet on both islands, the spatial scheme frames an entire cultural cosmology.

On Flores island, the primary spatial contrast of land as sea is crucial to understanding the distinctive ways people think about and relate to mountain turtles and Coconut crabs – their special ontological and epistemological status, in other words. As we'll see, with reference to this contrast, islanders visually encountering either creature experience them as physically "out of place" and thus symptomatic of cosmological disorder, a world turned upside down. More particularly, and with reference to their morphology, Florenese conceive of both freshwater turtles and the almost fully terrestrial Coconut crabs as marine or aquatic animals. Yet with evident zoological accuracy, they describe them as only ever occurring on dry land – or in or near freshwater, in the case of the turtles – and specifically in highland regions of their mountainous island. In this way, the animals are experienced as contradicting a fundamental principle of indigenous cosmology, and largely by virtue of their very occasional and thus extraordinary intrusion into the perceptible world of human beings, they identify the two species with normally invisible spirits**.**

Though not usually associated with the sea, forest spirits can be found in any unsettled location on dry land and not exclusively in the mountains. Yet throughout Flores, these spirits, like spirits in many parts of the world, are conceived as inverted beings (e.g., Forth, 1998). Thus inversion suggests another factor linking forest spirits and marine turtles and crabs, creatures conceived as essentially marine but only appearing well inland.

Local Knowledge of the Freshwater Turtles and Coconut Crabs

People throughout eastern Flores call mountain turtles by the name they apply to far more familiar marine turtles – in local waters either the Hawksbill turtle *Eretmochelys imbricata* or the Green turtle *Chelonia midas*. The Lio name is *kéra*; the Sikkanese and Lamaholot equivalents are, respectively, '*éra* and *ke'a*. When used without further specification, therefore, the terms are understood, in all regions, as referring to marine turtles. Only in Sikka and in the Lamaholot dialect of Boru (East Flores) did I find a special name for freshwater turtles. In both languages, the name is *paro*, a term which, interestingly enough, appears related to names for freshwater turtles in several Philippines languages (Blust & Trussel, 2010). But as *paro* was known only to two elderly men, everyone else in these regions simply referred to these turtles with the general term for "turtles" (or with a descriptive compound, like Lamaholot *ke'a wai*, "freshwater turtle").

Just as I recorded clear reports of Coconut crabs (*Birgus latro*) only in the eastern Lio domain of Mego, so it was only in Mego that I recorded a special name for the giant crustaceans. Elsewhere people use *kojo*, the general Lio term for crabs (Forth, 2019). The special Mego name is *kepi*. In more westerly parts of Flores, the same name is used for large marine bivalves, including what people describe as large, rarely encountered

"terrestrial clamshells" – another manifestation of dangerous forest spirits, about which I'll have more to say below.

As is already clear, the anomaly of both mountain turtles and Coconut crabs lies in their invariable occurrence not in the sea – the abode of far better known marine turtles and ordinary marine crabs with which the aberrant creatures are terminologically identified – but far from the sea and in the mountains. To be sure, people recognize physical differences between these creatures and their far more common marine congeners. For example, they describe mountain turtles as possessing feet and claws resembling those of monitor lizards (*Varanus salvator*), whereas marine turtles have (clawless) flippers. Distinguishing the crabs is their extraordinary size – growing up to a meter in width – and furthermore the fact that, unlike saltwater crabs and far smaller land and freshwater crabs, when the giant crustaceans are seen, they are usually encountered far from any water source. Coconut crabs are the world's largest terrestrial arthropod and among the "most fully terrestrial" of the world's crabs (Hartnoll, 1988, p. 46). However, like recognized physical differences between freshwater and marine turtles, the crab's extreme size only adds to and underscores the anomaly of their seemingly irregular occurrence in terrestrial and highland environments.

As for manifestations of potentially malevolent forest spirits, mountain crabs and Coconut crabs are most dangerous when someone kills or harms a specimen. Such an act is "taboo" (Lio and Sikkanese *pire*; Lamaholot *pi'in*) and can result in illness or death, either for transgressors or members of their families. Yet simple encounters with the crabs and turtles also entail risk and also require ritual countermeasures to avert affliction. Like any location associated with forest spirits, any spot where a person comes across such a creature is, by definition, a "taboo place" (Lio *ola pire*). Throughout Flores, people regard these forest spirits as the original occupants and owners of the land. Long ago, humans began replacing them in many locations. Their forest homes were cleared for settlements and fields. And the spirits thereby became confined to presently unsettled regions, especially including mountain forests – exactly the places where humans might, unexpectedly, encounter a mountain turtle or forest crab.

Not just encounters with the crabs and turtles but any contact with invisible forest spirits is dangerous. Yet owing to their close association with the land, the spirits – in some contexts specified as "earth spirits" (*nitu pa'i tana watu*) – are further regarded as a source of fertility, and their proper treatment ensures the well-being of the land. To that extent, then, people regard these beings as partly benevolent, and as we'll see, the same can contextually apply to turtles and crabs. On rare occasions, encounters with mountain turtles and Coconut crabs can, exceptionally, prove beneficial to individuals. And as I later show, in one major ritual context both creatures are conceived as collectively beneficial.

Nevertheless, in local accounts, it is the dangerous aspect of the turtles and crabs that predominates. A middle-aged Lio man related how, when he was about 20 years old, several people encountered a mountain turtle beside a highland stream while a nearby bridge was under repair. An elder among them warned that it was taboo for young people (like the informant) to lay eyes on such a thing and that touching the turtle could make them ill. An experienced ritualist, the elder then made a food offering and

carried the creature to a distant and more secluded spot so that men working on the bridge would not step on or otherwise harm the turtle.

With Coconut crabs, the danger is equally great if not greater. Anyone coming across a specimen should quickly withdraw, reciting a formula stating, for example, that "we did not intend to (meet) with you; you should travel your way while we will go separately on ours." According to another view, people have more chance of escaping unharmed if they see the crab before the creature sees them, and if they keep quiet and don't speak. If things happen the other way round, the person will likely die, fall ill, or suffer mental derangement, unless ritual countermeasures are taken immediately.

In Lio, a Coconut crab or mountain turtle found on cultivated land, or land being cleared for cultivation or to construct a dwelling or found a settlement, has a particular consequence. As the creature's presence reveals the location to be an abode of forest spirits, all work must immediately stop. For the same reason, owners sometimes decide to abandon the area permanently. Alternatively, they will make a food offering and request the turtle or crab to move to another place. If a sufficiently skilled ritual specialist is available, then this person might physically remove the creature (as in the example mentioned above). Food offerings may also be deemed a sufficient recourse when someone kills a mountain turtle or Coconut crab. In Boru (Lamaholot), I was told the killing of a freshwater turtle traditionally required the sacrifice of a goat or pig. As I was repeatedly assured, if none of these measures is taken the consequence will be illness or more likely death.

Although encounters with both Coconut crabs and mountain turtles usually involve lone individuals, the appearance of a turtle can betoken a more general disaster. In Boru, people related how formerly, when the turtles were more numerous, children sometimes caught and played with them (e.g., by tying strings to the animals and pulling them along). Parents and elders would then exclaim that this was taboo and order the youngsters to release the creatures, warning how such acts could result in heavy rains and catastrophic flooding. In the same vein, when several turtles appeared in an inundated area during floods that affected Boru in 1988 or 1989, a now-deceased ritual functionary performed a rite, which according to his granddaughter resulted in the turtles quickly "disappearing" and "returning to their places." Their true places are of course the sea. Similarly, a Lio ritualist reputedly adept at dealing with such things told me that when removing a Coconut crab one should recite a formula requesting the creature to "return to the sea."

The taboo on children playing with the turtles reflects a belief, widespread in Southeast Asia, according to which treating a nonhuman animal improperly – including laughing at, speaking to, or using it as a plaything – will result in a thunderstorm with lightning strikes or heavy flooding and landslides (Blust, 1991; Forth, 1989). The belief is found in the Lio region, where I was told that the appearance of a turtle in fresh water would presage an earthquake or similar catastrophe. The idea that disastrous meteorological consequences will follow from things appearing in, or being moved to, places where they should not be – or environments thought contrary to their nature – is hardly peculiar to eastern Flores. An example from Riung, in northwestern Flores, is a myth concerning villagers who once brought a live fish from the sea in a pot and placed it in a wooden trough. Watching the fish swim about in the trough caused people to laugh, whereupon a cataclysmic storm

arose and a resulting flood destroyed the entire village and its inhabitants (Arndt, 1935, pp. 350–351). Evidencing the same idea, villagers in the Sikka region and East Flores (Flores Timur) related how, formerly, people resisted government efforts to promote fish-farming, which involved raising live fish in ponds or wet rice fields. These were naturally fish that could survive in fresh water. Yet all were exotic species ultimately brought from off-island and hence from across the sea, and as one Sikkanese commentator explained, "bringing any live fish to dry land can result in heavy rains and lightning strikes."

As marine and freshwater fishing have likely been part of local economies for as long as *Homo sapiens* (and especially Austronesian-speakers) have lived on Flores, catching and killing fish of any sort and bringing dead fish to dry land would of course never have been problematic. But taking live fish from the sea and releasing them in inland places is quite different, for like the sudden and unexpected appearance of turtles and Coconut crabs in highland locations it seriously contravenes the necessary cosmological separation of land and sea. In addition, the theme of inundation expressed in the Riung myth, where the land becomes covered in water and settlements are destroyed by flooding, parallels the categorical confusion represented by the occurrence on land of turtles and giant crabs – creatures that eastern Florenese categorically identify with the sea.

Human Reactions to and Relations with Mountain Turtles and Coconut Crabs

In view of the danger they pose, it is understandable that the appearance of either a turtle or a crab can inspire considerable alarm. This is borne out by both general descriptions of the creatures and a series of individual sighting reports. The personal accounts are further important for the way many link individual distress with the palpable ecological anomaly Flores Islanders discern in the creature's perceptible occurrence.

Recounting how, as a boy of 7 or 8 years old, he saw a mountain turtle near a stream leading into a rice field, Wogo,[4] a Lio man in his seventies, said the experience so alarmed him that he "almost fainted." How, he exclaimed rhetorically, could a turtle appear in that place (a highland location some 5 km from the coast)? Similarly, another man, explaining why he thought a turtle hypothetically appearing in freshwater could eventuate in a natural catastrophe, stated that such a thing would be "odd, peculiar" and for this reason would cause people "to feel strange," further remarking that turtles are things of the sea and should never occur in freshwater or on dry land. People who encounter Coconut crabs, too, invariably describe the experience as frightening, and for the same reason. Referring to what was evidently a Coconut crab that once appeared 6 kilometers from the coast in the Sikkanese-speaking region, a local man remarked how this had frightened people because such crabs "are things of the sea."

Notwithstanding the large size of Coconut crabs, there's nothing particularly unusual or alarming about the physical form of either these or the mountain turtles; indeed, they look very much like other turtles and crabs. So it might be thought that the fear both inspire reflects the belief that they embody malevolent spirits. Yet judging by local accounts, a more important factor is the circumstance that people who encounter

these things see something they have never seen or even heard of before, and moreover, see them in places where these essentially marine creatures are not supposed to occur. Expressed another way, the fact that Florenese deem simple encounters with a mountain turtle or Coconut crab to be *pire* ("taboo, inauspicious") suggests that anyone who sees such a thing is seeing something they should not see. And this apprehension and the accompanying experience need not be accompanied by any knowledge that such creatures can manifest dangerous spirits.

In a similar vein, Lio people regularly mention how encounters with both sorts of animals are "chance occurrences" (Indonesian *kebetulan*) experienced by very few people. Alternatively, they say the creatures cannot be "seen" or "encountered, found" (both meanings of Lio *tei*) by just anyone, or are "not visible" to everyone. By the same token, their appearance is described as never arbitrary but always meaningful and, if conceived as reflecting the will of associated forest spirits, probably intentional. Accordingly, a Boru (Lamaholot) villager, commenting on how freshwater turtles were hardly ever seen at present and were encountered less often than in times past, suggested that this may be because the forest spirits are "hiding" them, thus not allowing the creatures to be seen.

As agrees with their recognized rarity, the idea that the anomalous crabs and turtles are not consistently visible is expressed in other ways. Referring in part to the fact that the creatures are not regularly seen, or are seen by most observers only once in their lifetimes, one Lio man described them as things that "just appear and disappear" – a characterization equally befitting normally invisible forest spirits. Another spiritual power sometimes attributed to the turtles, at least, is an ability to transform: to assume a guise different from their original (chelonian) form. Thus a Boru villager, whose sole encounter with a mountain turtle was around 1980, described how the "strange" creature had frightened him "because [he] thought it might transform into something, perhaps an elderly person." The ability to assume a variety of guises is a power Florenese attribute to essentially invisible spirits in general, including forest spirits appearing in dreams. And an old person is the shape they most commonly assume.

These themes further occur in the story of Ndia, a Lio woman in her 60s who, as a young girl, went to fetch water from a pond near her highland village. In the pond, she encountered a turtle. The sight of the strange creature frightened her so much that she immediately fled, and she did not get far before passing out. While unconscious, a forest spirit appeared before Ndia in the shape of an old man and admonished her for running away. As she was an orphan, the figure explained, he had wanted to give her "something good." But there was an even more negative consequence to Ndia's flight. Years later, her firstborn child, a boy, was born with three light-colored stripes on his forehead, resembling marks on the head of the turtle, and the child died after three months. The description of the stripes matched the markings on the head of the box turtle species, *Cuora amboinensis*.

The spirit's desire to give Ndia something recalls that, occasionally, encounters with mountain turtles or Coconut crabs can be beneficial. Apart from individual benefits (as, potentially, in the case just described) the creatures are further conceived as providing collective benefits. As befits the animals' aquatic habits, Lio and other eastern Florenese regard mountain turtles as "water guardians," ensuring that water sources continue to flow, and thereby maintaining the wellbeing and fertility of the land. Sikkanese villagers

described freshwater turtles not only as guarding bodies of water but also as being themselves sources of water. More specifically, the chelonians "vomit up water," thus creating or replenishing springs and streams. For this reason, people would formerly keep springs clear of grass and debris so that turtles would remain in these places.

Expressing much the same idea, Lamaholot-speakers in Boru spoke of mountain turtles as benefiting agriculture and "bringing strength" to cultivated fields (Forth, 2017, p. 308). Laka, an elderly Lio ritualist once told me how, in his younger days, he'd been called to a highland village to ritually remove a turtle that a landowner had found in a pond. The cultivator wished to open a field close to the pond and saw the turtle's presence as a problem. But in the end, both Laka and the landowner decided to leave the creature where it was, partly because they could find no other suitable body of water to which to remove it, but also because "the pond was its rightful place" and removing it could "harm the land."

By contrast to turtles, hardly anyone mentioned Coconut crabs bestowing benefits on individuals (abundant harvests, for example). Also, where such benefits are obtained, I was told that a cultivator runs the risk of having to repay good fortune with the life of a family member. However, two people who'd seen such crabs described these too as "water guardians," further crediting them with digging holes in the earth with their pincers, to release underground water to create springs and streams. Occasionally, the Coconut crabs, like the mountain turtles, are also described as guardians of the land, an attribute quite expectable given the identification of both the turtles and crabs with forest spirits.

While most of what eastern Florenese say about mountain turtles and Coconut crabs depicts them as essentially marine or coastal creatures that are "out of place" in relation to the contrast of land and sea and therefore dangerous, the foregoing ideas reveal that certain inland locations are considered their proper places. What's more, the creatures are conceived as fulfilling positive roles in relation to the land and freshwater, and sometimes providing benefit to favored human individuals as well. Much the same applies to potentially malevolent but sometimes benevolent forest spirits. Both the turtles and crabs also play a positive part in major agricultural ritual, where the creatures' connection with forest (or earth) spirits has a particular relevance. In this context, moreover, the animals' combining of two halves of the cosmos – the sea (their proper place) and the land (where both palpably occur) – assumes a positive value. But before exploring this topic further, we need to situate the Coconut crabs and mountain turtles in relation to several other local creatures.

Mountain Turtles, Coconut Crabs, and Other Spiritual Animals

Similar in almost every respect to the turtles and crabs is a creature that is evidently imaginary. Referred to in more westerly parts of Lio as *kepi*, the term that in Mego denotes Coconut crabs, the creatures comprise large clamshells that people very occasionally encounter on dry land, on the surface or beneath the ground. It hardly needs remarking that these entities contravene the land–sea opposition in exactly the same way as do Coconut crabs and mountain turtles. The shells are probably the remains of bivalves brought to the surface by normal tectonic processes of earth movement, uplift, and

erosion (Forth, 2019). Alternatively, they could be shells brought from the coast long ago by humans that remain at no longer remembered settlement sites.

Although consisting solely of a shell, people claim these things are able to move and to open and close like a living clam. Associated with forest spirits in the same way as mountain turtles and Coconut crabs, such shells are equally *pire* (taboo, inauspicious) and equally dangerous. A particular danger lies in the possibility of a person's shadow falling on the shell, or the shadow being "bitten" or trapped as the shell closes. A similar hazard concerns the Coconut crabs, which are reputedly able to "pinch the shadow" of anyone who comes too close and whose shadow touches the crustacean's body, an eventuality said always to prove fatal. So it is noteworthy that the name *kepi* appears related to similar words in several Flores languages that mean "to pinch, nip, squeeze." According to Flores Islanders, both marine and freshwater turtles, too, are able to pinch, specifically by trapping a person's fingers or hand between the neck and carapace if handled incautiously. And though I'm not sure how general the idea may be, one Lio elder claimed that, in the form *kepi kéra* ("turtle *kepi*") *kepi* also encompassed freshwater turtles (Forth, 2019).

Rare and infrequently encountered mountain turtles, Coconut crabs, and large terrestrial clamshells are not the only living creatures (or things notionally living in the case of the clamshells) that Florenese associate with forest spirits. The animals they most often describe as physical manifestations of these spirits are very familiar snakes and eels, specimens of which are also identified as water guardians. Taking the form of either animal, the spirits provide favored individuals with good fortune in the form of economic well-being or supernatural power with which they can either help or harm other people – by becoming either healers or sorcerers (or even witches). At the same time, treating the animal improperly or failure to follow the instructions of the manifesting spirit (usually revealed in a dream) can have negative consequences.

Thus far local conceptions of snakes and eels may seem fundamentally similar to representations of Coconut crabs and mountain turtles. But there are important differences. For only particular specimens of snakes and eels visibly manifest spirits and they do so only in relation to individuals who happen to encounter one. In other words, islanders identify eels or snakes as spirit animals only incidentally and situationally, and they do not regard all members of these species as embodying forest spirits permanently or even usually. What's more, animals of these sorts that people suspect of being spirit manifestations are typically distinguished by their rarely observed appearance or behavior. These include specimens found copulating or which are oddly colored or patterned. They can also be exceptionally large, a peculiarity recalling the extremely large size of Coconut crabs in relation to other crabs. But people conceive of the giant crabs and mountain turtles, by contrast, as linked categorically with forest spirits, and the typically negative consequence of encountering any specimen is the same for everyone.

Because snakes and eels are common creatures that naturally occur in various terrestrial and aquatic environments – and in the case of snakes both on dry land and in the case of relatively familiar sea-snakes, in the sea – the association of these creatures with forest spirits obviously does not entail the sort of ecological anomaly exemplified by mountain turtles and Coconut crabs. Nor are snakes or eels regarded in any respect as anomalous or ambiguous. So why should these creatures be able to manifest spirits,

albeit incidentally? For snakes, the answer ultimately lies in a worldwide association of ophidians with spirits, linked with a strong emotional reaction to snakes (mostly anxiety or intense fear), which as Mundkur (1983) has convincingly demonstrated, is firmly grounded in human evolutionary biology. Eels are not typically classified as or with snakes in Florenese folk taxonomy, but people certainly recognize their close physical resemblance to snakes. Evidently, for this reason, Lio claims that certain kinds of snakes are capable of transforming into eels; in addition forest spirits, like eels, are throughout the island closely associated with bodies of freshwater. So too are certain snakes and more especially pythons, the largest of snakes, which hold a premier place among familiar species identified with forest spirits.

The different ways in which mountain turtles and Coconuts crabs, on the one hand, and snakes and eels, on the other, relate to these spirits are further shown by the fact that only the crabs and turtles are categorically taboo (*pire*). Should someone come across an unusually large or odd-looking snake or eel, it is not a good idea to harm or kill it. But this is only because the creature *might* embody a spirit, and in fact eels, and in some parts of Flores, pythons are regular items of local diet.

Among Lio at least, another common creature people identify with forest spirits is the Water monitor (*Varanus salvator*). Found in both coastal and highland regions throughout Flores, these lizards are connected with spirits in much the same way as are eels and snakes, and as their English name would suggest, they too commonly occur in or near bodies of water. Accordingly, when observed near water sources, Water monitors can be identified as water guardians, like freshwater turtles and Coconut crabs – and indeed, snakes and eels.

Discussion and Conclusion

Clearly, the most important factor distinguishing mountain turtles and Coconut crabs from other animal manifestations of forest spirits is the way only the former controvert the cosmologically essential separation of land and sea. Conceived as a form of (relative) invisibility, rarity is less important, except insofar as snakes and eels that manifest spirits comprise specimens of unusual appearance or behavior and are therefore considered relatively or situationally rare.

The point becomes even clearer when we consider another Flores species, which is certainly rare – in fact as rare if not rarer than the turtles and crabs. This is the Komodo monitor (*Varanus komodoensis*), also known as the Komodo dragon, a creature that in general form resembles the closely related but much smaller and far more common Water monitor (*Varanus salvator*). Attaining a length of up to 2 or 3 m in different parts of its range, the dragon is the world's largest lizard. It is also an apex predator, a potential physical danger to humans and other large mammals (both game and livestock) and an impressive animal by any standard. Lio people report dragons as still occurring in northeast coastal Flores, apparently the easternmost limit of their current range. Very few people claim ever to have seen one, and in northern Lio the last documented sighting of Komodo dragons by outsiders, specifically officials of the Indonesian Natural Resources Conservation Office (BKSDA), was in 1985 (Ciofi & Gibson, 2006, p. 3). According to my ethnographic notes, the last time any villager saw one in this region was in 2017.

However, local people do not identify Komodo dragons with forest spirits or spirits of any kind. Nor do they credit them with any sort of supernatural power – a fact that, in regard to their beliefs concerning mountain turtles and Coconut crabs, and even the much smaller Water monitors, may appear not only surprising but ironic. Elsewhere (Forth, 2010) I've suggested that the palpable physical power of the giant lizards and the real danger they pose to humans may as it were obviate a conception of the animals as supernaturally threatening. But this argument would probably not survive cross-cultural examination, and as more recently proposed (Forth, 2021) a better explanation lies in the dragon's ecological relationship and morphological resemblance to two similar reptiles: the Saltwater crocodile (*Crocodylus porosus*) and, again, the Water monitor.

As noted, Water monitors (Lio *degi*) occur in all parts of Flores, including coastal areas close to the sea. As the English designation suggests, Saltwater crocodiles (Lio *mori*) inhabit the sea, yet they also enter estuaries and rivers; during the twentieth century, they were known to ascend rivers as far as the center of the island (Forth, 2016, pp. 221–222). Komodo dragons (Lio *mbou*), on other hand, favor very dry environments, which on Flores occur mainly on the island's north coast (Auffenberg, 1981, pp. 238–239). Nonetheless, the dragons are good swimmers. In parts of their range, they are known to swim distances of several kilometers between small islands and between these and the Flores mainland. Komodo dragons also feed on beaches, where they consume fish and shellfish, and in 2018 I recorded the story of a Lio fisherman who discovered a dragon inside his net feeding on his catch. At the same time, dragons can range as far as 5 kilometers inland, where they nest and spend the night in hillside burrows and prey on livestock as well as deer and wild pigs.

Komodo dragons are thus sympatric both with Water monitors and with marine crocodiles. Although it would be difficult to confuse any two of the three species, in their general form they moreover resemble one another quite closely. Interestingly enough, an Indonesian (national language) name Flores islanders use for the dragons is "land crocodile" (*buaya darat*), a term employed elsewhere for Water monitors. What's more, in north central Flores (specifically in the region of Nggolo Nio) people claim that when they enter the sea dragons may engage in combat with crocodiles, and if the dragon is victorious it will remain in the sea and transform into a crocodile (Forth, 2010, p. 304).

All bearing distinct names, Komodo dragons, Water monitors, and crocodiles are not definitely related in eastern Flores folk taxonomy. Yet their physical and behavioral resemblances and ecological overlap (including not dissimilar diets) are all recognized by local people, and morphologically and territorially the three species reveal a recognized continuity. Expressed another way, in all major respects, dragons appear to be intermediate between smaller water monitors and large crocodiles. So coming across a dragon at an inland location could hardly be interpreted as a sea creature anomalously appearing "out of place" in the same way islanders experience encounters with terrestrial mountain turtles and Coconut crabs in highland forests.

Having seen how people can encounter Komodo dragons, like many other animals, in the sea as well as on dry land, I should mention that in Flores cosmology the relation between land and sea is nonetheless asymmetric. That is, there are no creatures that people conceive as land animals but which they only ever observe in the sea – thus

the converse of their understanding of mountain turtles and Coconut crabs. An exception might appear to be dugongs (*Dugong dugon*). Islanders regard these entirely aquatic and seldom seen marine mammals as anomalous animals that combine features of creatures of the sea and of the land – specifically fish (particularly with respect to the large, mermaid-like tail) and humans (the female breasts and nipples, the external genitalia, and bones of the fore-limbs resembling those of a human hand). Like other Indonesians, Florenese explain this combination with a myth according to which dugongs derive, by way of a once-and-for-all transformation, from a human female driven into the sea by a cruel husband (Forth, 2021). But although transgressors can suffer negative consequences if they harm or kill a dugong, simply coming across a specimen is not dangerous in the same way as simply encountering a mountain turtle, Coconut crab, or terrestrial clamshell.

Part of the reason is that the transformation from a human (thus a land being) occurred long ago, in the mythical past. As a result Lio now classify dugongs (*ruju*) as "fish" (*ika*), even though eastern Lio still name them "dugong people fish" (*ika ata ruju*) or simply "dugong people" (*ata ruju*; Forth, 2020). But more importantly, humans are of course creatures of the land, and though coastal fishermen sail on the sea and sometimes dive into or swim in the sea, they do not experience dugongs as invasive entities as they do essentially marine creatures, like mountain turtles, that as it were perversely only ever appear in inland regions.

Florenese views on anomalous animals as manifestations of malevolent spirits and taboo obviously recall an old approach in anthropology most closely associated with Mary Douglas's (2002). Yet whereas Douglas's main concern was animals that appeared ambiguous in the context of a given classification, and so "out of place" in a metaphorical sense, for Flores islanders freshwater turtles and Coconut crabs encountered in the highlands are quite literally out of place. All the same, Douglas further showed how ambiguous creatures can be "sacred" – that is, identified with spiritual beings or supernatural powers that can be positively beneficial if properly treated – rather than simply "polluting" in a negative sense. And this equally applies to the turtles and crabs.

As we've already seen, as manifestations of forest spirits mountain turtles and even Coconut crabs occasionally benefit individuals, at least in a qualified way. People further regard them as playing a positive role in preserving waters sources. But there is another context in which these creatures assume a positive significance. Typically located in forest some distance from habitations, Lio maintain shrines (*musu mase* or simply *mase*), ritual sites where every year they make offerings to request fertility for the land from a variety of spiritual entities, including the highest divinity (*Du'a Ngga'e*) and the ancestors. But as agrees with their association with the land and agricultural fertility, shrines are at least equally associated with the forest spirits, in this setting named "spirits (*nitu*) of the earth" (*nitu pa'i tana watu*). And like any location believed to be inhabited by forest spirits, the shrines are deemed "taboo" (*pire*), meaning that they should be approached only by particular people and then only to perform rituals or maintain the shrines.

For present purposes, however, the most significant feature of these shrines is the Lio belief that some are guarded by a mountain turtle or a Coconut crab, which invisibly attends the rites and participates in the offerings. (Here I should note that each shrine is considered unique, and all are described as having something unusual – zoological

or otherwise – actually or notionally present at or near the site.) By contrast, I never heard of any shrine guarded by a snake or eel, the animals most prominently associated with forest spirits. So the question arises: why, at annual rituals conducted at the *mase* shrines, is it mountain turtles and Coconut crabs that are connected with these spirits – or as one might just as correctly say, which embody them?

The answer lies once again in the fact that, just as Lio understand these two animals as essentially marine creatures that can anomalously appear in the highlands, so they also regard the shrines as places, which although located on dry land and usually in elevated sites, nevertheless connect the land and the sea, two major parts of the cosmos. With some shrines, this idea finds explicit expression in claims that, at or near the site, is a vent leading directly to the sea. To cite one example, villagers who conduct annual rituals at one shrine in central Lio say that, each year, a Coconut crab emerges from a nearby vent to take the head of a goat sacrificed on this occasion. But turtles and crabs are not the only shrine guardians that Lio identify with both the land and the sea. Non-empirical and more fantastic creatures manifest the same combination. Thus in a hillside cavity near an eastern Lio shrine, owners claim, there lives a miniature "crocodile" (*mori*). Opinions vary, but if not as an actual crocodile, the animal is described either as a crocodile in name only or a crocodile that is visibly manifest either as a Water monitor, a large Gecko (*Gekko* sp.), or a very large skink. In another instance, a ritual specialist described a shrine as being guarded by an octopus-like creature (*kepi kubi*, comprising *kubi*, "octopus," and the eastern Lio name for Coconut crabs). This belief recalls a highland village named Watu Kubi ("Octopus Stone"). Though the eastern Lio shrine has no connection with this central Lio village, the settlement is named after a large natural stone located within its confines, from out of which a large octopus is said to have emerged in the distant past. What spiritual or ritual significance the stone might have, or once have had, I wasn't able to discover. But what all these zoological or zoomorphic entities have in common, of course, is that the creatures categorically belong to the sea and yet, abnormally in the local view, occasionally appear on the land (like mountain turtles and Coconut turtles) or are imagined as so appearing (like the "octopus" and "crocodile").

Particularly in this ritual setting, then, mountain turtles, Coconut crabs, and more imaginary creatures can be understood as representing an undivided cosmos and a unity of opposites. The shrines themselves also evoke such a unity, for while they concern the fertility and well-being of the earth, it is not solely the earth spirits (or forest spirits) that are served in these places; rather, the rites annually bring together the totality of spiritual beings known to Lio. Still, all this applies only in the context of organized ritual, special occasions set aside spatially and temporally from mundane activities, on which only certain people – principal land-owners and ceremonial leaders – can legitimately enter the shrines. On other occasions, when anyone – typically a lone individual – randomly and unexpectedly comes across a visible freshwater turtle or a Coconut crab, things are different. For then the creature is experienced with alarm, as something out of place that should not be perceived and thus a danger requiring a ritual remedy. Yet even in this case, an individual might occasionally derive benefit from the encounter – an idea that can be interpreted as an individualistic, and risky, exploitation of benefits people enjoy collectively by way of community rites performed at the shrines.

I conclude where I started, with the apparent permeability of the ontological distinction of "animal" and "spirit." Academic zoology suggests that mountain turtles and Coconut crabs are rare specimens of a box turtle (*Cuora amboinensis*) and the Coconut crab (*Birgus latro*), respectively. Their supernatural attributes, however, raise the question of whether Flores islanders consider the creatures to be physical animals at all. Such a view might be suggested by indications that – like the normally invisible forest (or earth) spirits with which mountain turtles and Coconut crabs are closely associated – the creatures should not be "seen" (Lio *tei*, also meaning "encountered, found," "come into contact with," "got, obtained").

Interestingly, the proposition recalls the second-century Gnostic doctrine of docetism, according to which Christ, during his time on earth, was pure spirit, so that his body was illusory, phantasmic, or immaterial (Verheyden et al., 2018). Yet for the turtles and crabs, several facts argue against such an interpretation. For one thing, Florenese themselves make no such claim; while linking them closely with spirits, they do not say they are themselves spirits. For another, islanders speak of both creatures as possessing bodies, so in this respect the animals contrast with forest spirits, which "lack bodies" (Lio *tebo iwa*), or more specifically, bodies of their own – as opposed to the bodies of other beings, including of course mountain turtles and Coconut crabs, whose visible forms they sometimes assume. By the same token people recognize these creatures as physical beings inasmuch as they know that it is possible to kill and eat them, even though doing so is taboo.

It would therefore be more accurate to say that Florenese understand Coconut crabs and mountain turtles as being animals and spirits simultaneously. Indeed, this further ambiguity of the two creatures may augment their mystery, though, as the comparison with ecologically continuous snakes and eels has shown, not to the same extent as does the animals' very infrequent and so abnormal visual manifestation in inland places where, according to local cosmology, they should not be. In this view, then, indigenous representations of anomalous turtles and crabs are more comparable to the orthodox Christian belief according to which Christ was embodied spirit or "God incarnate." In any case, both understandings reflect attempts to transcend the opposition of entities that possess bodies (like animals and humans) and beings that, in the Lio expression, are "only spirit," or pure spirits – a contrast that is as much part of indigenous Florenese cosmology as it is of Christian theology.

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Notes

1. Lio speak a language belonging to the Ngadha-Lio group, while both Sikkanese and Lamaholot are Flores-Ambon languages. All are further classified as Central-Malayo-Polynesian languages.

2. The project of which the present article and other papers published since 2017 form part was approved by the Research Ethics Boards (REB) at the University of Alberta. As explained in my application for ethics approval, informed consent was obtained orally because literary skills among prospective informants were often poor and the purpose of printed forms was usually not well understood.
3. With reference to Fiji, for example, Toren (1990, p. 246), employing evidence from child development, has demonstrated how the land–sea contrast is of primary importance for "the cognitive construction of a hierarchy scheme" and the reproduction of social inequality.
4. Here and elsewhere I use pseudonyms.

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